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ABSTRACT

Research on free play among children is reviewed, and the relation of such research to the adaptation and use of play environments for multiply handicapped/mentally retarded (MH/MR) children is considered. Noted among research findings are that the nature and organization of playground equipment has a significant effect on children; that children prefer equipment that is either movable and/or complex; and that the creative playground can stimulate and provide for as much, if not more, gross motor activity as the traditional playground. It is concluded that play meets many basic needs of the children: acceptance, achievement, creativity, emotional development, social growth, and physical development. (SBH)

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SELECTED FREE PLAY RESEARCH:

IMPLICATIONS FOR MH/MR CHILDREN*

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SELECTED FREE PLAY RESEARCH:

IMPLICATIONS FOR MH/MR CHILDREN

Play is vital to children--to all children. Through play--especially free play--children nave opportunities to create, to develop physically, socially and emotionally, to achieve and to be accepted and to gain acceptance of themselves. Many of these opportunities are also synonymous with basic needs. Thus, one might say that play meets many of the basic needs of children. With this in mind, the dearth of research on free play among children--and particularly among MH/MR children--is difficult to explain.

However, there are changes being made in the area of research on free play among the normal early childhood population. An upsurge of research in the 1930's--Parten (1932), Dow (1933), Johnson (1935)--gave way to many years of almost total neglect. In the 1960's, play research experienced a rebirth, particularly with Piaget's (1962) work, but only more recently has such research come into its own: Barnes (1971), Sutton-Smith (1971), Rubin, et al (1976, 1978), Henniger (1977), Frost and Campbell (1977), Frost and Strickland (1978), Frost and Klein (1979). Still with all this research activity, there appears to be no research yet conducted on the outdoor free play of MH/MR children in the kinds of environments many educators and developmentalists have come to see as most appropriate for the developing young child. Certainly this is an area that requires research if we are to determine whether or not we are providing optimum learning environments and experiences for MH/MR children. The physical environment and play opportunities of MH/MR children needs to be extensively researched.

Although this need exists, previous and ongoing research at the Redeemer Lutheran School (Austin, Texas) play research site may lend itself to generalizations regarding the adaptation and use of such play environments for MH/MR, as well as physically handicapped, children. Before this research is related to the needs of MH/MR children, a brief review of the more recent phases of the various studies will be given.

Frost and Campbell (1977) studied the free play of conserving and nonconserving second grade children in contrasting environments. The two play environments--one traditional, one creative--included in the study were both located at Redeemer Lutheran School, one on either side of the classroom building. The traditional playground consisted of fixed-position metal equipment--a seesaw, slide, merry-go-round, swings, etc.--along with a games-with-rules area. The creative playground consisted of commercially produced and hand-made structures, loose parts for construction, supports for dramatic play and a games-with-rules area.

Data were collected using a point time sampling procedure. Each child was observed twice daily during a thirty-minute play period on each playground. Data were collected one day per week for ten weeks.

Results from the study indicate that the type of equipment is a major determinant of the nature of the play which occurs in a given environment. For example swings contributed to parallel activity, the "traditional" equipment to gross-motor or exercise play, and dramatic play supports to socio-dramatic play. A more balanced range of social play forms (with the exception of cooperative play which was about equal for both playgrounds) was provided by the creative playground, as can be seen from the following data.

Social Play Forms

Traditional Playground		Creative Playground
3.4*	Solitary	11.0*
27.4	Parallel	12.6
7.7	Associative	12.8
47.6	Cooperative	50.2
13.4	Not Play	13.3

*percentage of total observations

The cognitive play forms showed the same general tendency, i.e., for the scores to represent more balanced participation by the children in all cognitive play forms on the creative playground. The following data illustrate the above point.

Cognitive Play Forms

Traditional Playground		Creative Playground
77.9*	Functional	43.7*
.2	Constructive	3.9
2.0	Dramatic	37.0
6.9	Games With Rules	2.0
13.0	Not Play	13.3

*percentage of total observations

It should be noted that there was not enough provision for constructive play on the creative playground. The loose parts materials were limited in number and variety. However, one can still see that when provided, these materials are used by children.

The authors concluded that the nature and organization of equipment had a significant effect on the play of the children observed. Furthermore, the suggestion was made that if particular play forms are desired or are felt to be more desirable for their contributions to social and cognitive development, consideration should be given to providing the type environment--namely a creative type playground--that appears to provide for a wider variety of play forms.

More recently, Frost and Strickland (1978) studied the free play of kindergarten, first and second grade children in three different environments. The three environments were as follows:

> Playground A - A complex unit structure built by Educational Systems, Inc. The structure has interior space, exterior climbing surfaces, room for dramatic play, a slide, a firefighter's pole, two ladders, and two horizontal tire swings.
>
> Playground B - A linked, obstacle course of sixteen pressure treated pine structures including a slide, climbing tower, suspension bridge, horizontal ladder, chinning and climbing bars, balance beams and related equipment.
>
> Playground C - A mixture of commercially produced and parent-made structures, a boat, a car, games-with-rules equipment (utility balls, basketball and football), wheeled vehicles and loose parts--tires, crates, spools, etc.

Using an environmental mapping strategy to locate each child's position, data were collected three times during daily thirty-minute play periods for six weeks (seven weeks for kindergarten classes). Thus there

were in excess of 2500 units of information regarding the play location and equipment choices of the children.

Results support the developmental nature of play as described by Piaget. For instance, games with rules play represented 1.04% of the total play of kindergartners; 9.06%, of first graders; and 17.60%, of second graders.

Some of the more popular features of the playgrounds are listed below. The figures represent percentages of the total 2586 observations. The figures in parentheses represent the percentage of the 2586 observations accounted for by each particular play environment.

Site	Equipment Activity	Percentage of Observations
Playground A (23.20)	swings	11.29
	unit platform	4.72
Playground B (13.34)	climbing tower	3.52
Playground C (63.46)	wheeled vehicles	9.16
	fort/housekeeping	8.20
	football	6.84
	running/walking	6.65
	loose parts	5.61
	sand play	4.37

The above data support the conclusions of the more complete data reporting included in Frost and Strickland (1978). The major conclusions were as follows:

1) Playground C was the most popular because of the wider range of equipment, the provision for opportunities to engage in wider and more varied forms of play and the availability of movable equipment--wheeled vehicles and loose parts.

2) Children prefer equipment that is either movable and/or complex.

Additional research is being conducted at this time to study the free play of third grade children in the contrasting play environments--one traditional, one creative--mentioned elsewhere in this paper. Although analysis of the data is not completed at this time, several case studies conducted as a part of the larger research support the hypothesis that the nature of the physical environment facilitates certain play behaviors, while constraining others.

Using a continuous specimen record, data were collected on one boy and one girl on each playground during daily thirty-minute play periods. Observations on each child were alternated between the first and last fifteen-minute segments of the play periods over four days, resulting in a total of one hour of observation on each child.

Cursory examination of the data suggest that the children on the traditional playground use fewer pieces of equipment, fewer kinds of equipment, and engage in a more restricted range of play.

The tables below list all of the material and equipment used by each child during his or her one hour's free play.

Creative Playground (A)

DB	SL
knee bar	unit structure, swing
fence climber	unit structure, inside
balance beams	tire swing (under slide)
climbing tower	fort
slide platform	tall slide
wooden tunnel	metal chain climber
bridge	see saw (portable)
A-frame climber	sand

(continued)

Creative Playground (A) - continued

DB

bar climber
horizontal ladder
boat
fort
tall slide
unit structure (inside)
metal chain climber
boards
ammunition boxes
wooden spools
plastic spools
tires
sand
barrel

Traditional Playground (B)

BW	SB
kickball	swing
basketball	metal climber
	chinning bar
	amphitheater
	dirt mound
	sand
	stick
	rock

As can be seen from the list, there is an indication that some children prefer a wide variety of stimuli for their play. Some children prefer less than is provided (BW). However, it should be noted that SB used some material not provided to her as play material, e.g., the stick and rock. Even from this cursory examination, the evidence is compelling: a wide

variety of materials and equipment needs to be provided in order to support and enhance the active play of children. Obviously, a more traditional type playground could not support or meet the play needs of DB.

An additional aspect related to the material is that 30% of the equipment DB chose and 50% of the equipment that SL chose allowed for the child to change, modify, or move the environment in some way. Playgrounds with all fixed position equipment cannot provide these opportunities.

One aim of physical educators and teachers is for children to develop their large muscles. Teachers often provide exercise programs or encourage such games as kickball, basketball, etc. to give children opportunities for muscle development, as well as a host of concomitant skills like cooperation, teamwork, etc. As was noted in Frost and Campbell (1977), again we see that both playgrounds provide for much gross motor activity. The large-muscle activities engaged in by each child are listed below.

Creative Playground (A)

DB	SL
balancing	swinging
jumping from one object to next	running
jumping from object to ground	walking
climbing, arm muscle emphasis	sliding
climbing, leg muscle emphasis	crawling
walking	climbing, arm muscle emphasis
running	climbing, leg muscle emphasis
running holding object	jumping from object to ground
carrying heavy objects	digging
rolling heavy objects	balancing
stacking heavy objects	
lifting heavy objects	
lifting own weight	
hanging by arms	
throwing objects	
dancing on structure	
sliding	
crawling	
mock fighting	

Traditional Playground (B)

BW	SB
kicking ball	walking
catching ball	running
rolling ball	digging
throwing ball	swinging
running	lifting own weight
walking	climbing, arm muscle emphasis
	climbing, leg muscle emphasis

From the above list, it appears that the creative playground can stimulate and provide for as much, if not more, gross motor activity than the traditional playground. The boy on playground A is certainly involved in much more gross motor activity than any of the other children. When compared to the boy playing kickball, the boy on the creative playground is involved in more large muscle development, yet we often think that physical education activities, primarily organized games, give children a full range of muscle activities. An interesting aspect of the combined lists is that much of the activity of children can be classed as effector behavior, i.e., the child serves as a change agent to move, modify or rearrange the equipment and material in some way. Approximately 30% of the behaviors listed could be considered effector behavior. Most of the effector behaviors are provided for through loose parts construction materials and sand. As noted in the previous research reported on these sites, children appear to prefer an environment which they can impact on in some way (Strickland, 1979).

What then are the implications of the above research for MH/MR children? As stated in the opening to this paper, play meets many of the

basic needs of the children. Acceptance, achievement, creativity, emotional, social and physical development are but a few of the needs met in free play for the MH/MR child. The above mentioned research seems to provide some direction for providing appropriate free play experiences for special children.

Acceptance. An environment which meets a child's needs communicates an acceptance of him. The provision of a wide range of free play experiences and equipment seems essential to each child's feelings of belonging and acceptance.

Achievement. Children who are not good at one activity may excel in another. A wide range of activities and experiences seems also to meet this need. Loose parts in sufficient number, size and availability would seem to supply some of the raw material necessary for MH/MR children to experience success, a feeling of "I can" on the playground.

Creativity. Although the range of creativity of MH/MR children may be limited, it can certainly go beyond pure adapted physical education and nandicrafts. Certainly these have their places, but let us not limit children by providing only these. Loose parts material and dramatic play props can be provided and supplemented with appropriate teacher interaction (and direction where necessary) to allow MH/MR children to participate in activities utilizing these materials for what has been traditionally known as the "higher cognitive and social forms of play."

Social Growth. Adapted physical education provides opportunities for the development of certain skills and competencies. However, there exists the possibility that social growth may be enhanced more through the

provision of activities and equipment which require more social participation and cooperation. Loose parts, dramatic play props and adapted physical education can all be a part of the MH/MR child's play environment, thus adding extra dimensions to social development.

A skillful teacher can guide children through the cooperative effort of building a "play house" from loose parts. Children can learn to accept and appreciate other children who work with them on such projects. Social situations of this nature also meet the need to communicate and serve to give a sense of belonging. In addition, the skillful teacher can then use the created structure in dramatic play situations thus allowing her/him to alternate periods of physical exertion with quieter, less strenuous activities.

Physical development. As noted earlier, a creative playground appears to provide for a balanced range of physical activities. Children can develop arm and shoulder strength, back and leg strength, as well as balance and coordination, in more ways than just adapted physical education. Carrying, stacking and lifting loose parts--engaging in what has been termed effector behaviors--can help with development in all of the above mentioned areas. Further, this type play--effector behavior--seems to meet that intangible need to impact on one's environment.

Although the above discussion is certainly cursory, it points the way to a reconsideration of the free play environments and experiences currently available to MH/MR children. It also requires each of us to ask if the environments we provide for children are the best they can be. Establishing environments to provide for the inclusion of play forms outlined in this paper seems to be a charge placed squarely with special eduators, a charge that needs to be accepted and dealt with speedily.

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